

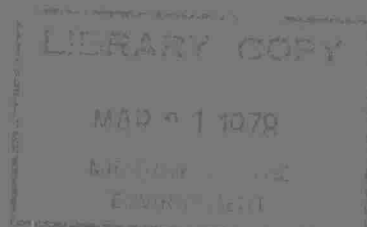
**SANITARY SURVEY
RICHARD'S LANDING
TOWNSHIP OF ST. JOSEPH
District of Algoma**

MAY 1977



Ontario

**Ministry
of the
Environment**



Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact ServiceOntario Publications at copyright@ontario.ca

POLLUTION CONTROL PROGRAMME

MAY 1977

RICHARDS LANDING

TOWNSHIP OF ST. JOSEPH

District of Algoma

Sault Ste. Marie District Office
Municipal & Private Abatement Section
Northeastern Region

TABLE OF CONTENTS

SUMMARY	1
INTRODUCTION	2
DISCUSSION	
1. Disposal facilities	
(a) Refuse disposal	3
(b) Sewage disposal	3
(c) Grey water disposal	4
DRINKING WATER	4
RECOMMENDATIONS	
GLOSSARY	
APPENDICES:	
I Survey data summary	
II Bacteriological results	
III Chemical results	
IV Map	

SUMMARY

A study of the sanitary and environmental conditions of residences in Richards Landing was conducted from May 24 to May 31, 1977. Emphasis was placed on drinking water quality, sewage disposal systems, and methods of refuse disposal. In cases where the owner was unavailable for interview, site evaluations were carried out.

The municipal garbage collection service was utilized by all residents but many people also transported refuse to the waste disposal site. Residents who burned garbage were advised that this action is in contravention of the Ontario Environmental Protection Act.

Drilled wells and springs were used for drinking water in the majority of cases. All sources were sampled for bacteriological and chemical analysis. Residents drinking contaminated water were informed of effective disinfection practices of water supplies prior to consumption.

The Algoma Health Unit was notified of the contaminated water sources and inadequate sewage systems.

INTRODUCTION

Richards Landing is located in the Township of St. Joseph on the north shore of St. Joseph Island. A survey was conducted in May, 1977, as part of the Ministry of the Environment's ongoing program of municipal pollution surveys. The data generated by the study is used to identify and upgrade faulty disposal systems and practices.

Richards Landing includes over 150 establishments, the majority being permanent residences with some businesses, summer homes, and vacant buildings. The survey crew interviewed 88 individuals out of 108 attempted contacts. A table summarizing the results of the completed interviews is included in Appendix I. Interviews included investigation into sources of drinking water and methods of grey water, sewage, and refuse disposal.

Discussion

Disposal Facilities:

a) Refuse Disposal

All of the residents of Richard's Landing utilized the municipal garbage collection service. Many residents also supplemented this service by bringing waste to the local waste disposal site since collection occurred once a month during the winter and twice a month in the summer. A small percentage of people (4.5%) burned refuse on their property. These people were informed that such a practice is contrary to the Ontario Environmental Protection Act.

b) Sewage Disposal

The majority of residents of Richard's Landing (81) utilize septic tanks. Holding tanks are used by the commercial establishments (3).

Because many residents were unfamiliar with the operation of their septic tank systems, evaluations were often restricted to visual inspections.

The following tanks did not conform to the Ontario regulations:

- i) Mr. F. W. Brason - septic tank 200 gallons (500 gallon minimum)
- ii) Mr. G. Jahner - well 16' from septic tank (50' minimum)
- iii) Mr. H. W. Courtney- septic tank 300 gallons (500 gallon minimum)
- iv) Mr. C. Eddy - septic tank 150 gallons (minimum size 500 gallons)
- v) Mr. G. H. Wood septic tank 200 gallons (minimum 500)
- vi) Mr. R. Gignac - septic tank 200 gallons (minimum 500)
- vii) Miss A. Grexton - septic tank 200 gallons (minimum 500)
- viii) Mr. C. Aelick - septic tank 200 gallons (minimum 500)

- ix) Mrs. E. Porter - septic tank 400 gallons (minimum 500 gallons)
- x) Mr. B. Gunn - tank bubbles up
- xi) Hospital - distribution pipe <50' from river
- xii) Mrs. M. McLeod - suspicious odours near septic tank

Letters were sent to the Algoma Health Unit to inform them of these substandard systems.

c) Grey Water Disposal (Kitchen - Bath Waste)

The following methods were utilized for grey water disposal:

- | | |
|-----------------------------------|----|
| i) combined to septic tank system | 33 |
| ii) separate system | 17 |
| iii) ground surface discharge | 0 |
| iv) other | 1 |

As in the case of sewage disposal, many people were unfamiliar with the plumbing of their buildings.

2 DRINKING WATER

The following are sources of drinking water at Richard's Landing:

- | | |
|-------------------|----|
| i) dug well | 8 |
| ii) drilled wells | 39 |
| iii) point wells | 1 |
| iv) spring | 22 |
| v) lake | 10 |
| vi) other | 5 |

Other sources consisted of neighbour's wells (1), Sault Ste.

Marie (2), and flowing wells (2). Samples for bacteriological and chemical analysis were taken from all local supplies.

The survey crew was informed that approximately 30 people utilize Littleton's spring.

In cases where coliform and faecal streptococci counts were above permissible levels, residents were informed of the proper disinfection practices, and the Algoma Health Unit was notified.

Chemical analysis revealed that 27% of the contacted residents

had iron concentrations in their drinking water which exceeded the Ministry of the Environment's acceptable levels. In three cases, nitrate levels were also high, although not above desirable standards.

Appendix II and III show the results of drinking water analysis.

RECOMMENDATIONS:

1. An attempt be made to gather details of systems which were not determined in this study.
2. Action be taken to ensure the enforcement of the Environmental Protection Act regarding burning of garbage on private property.
3. A review be undertaken in conjunction with the Algoma Health Unit to determine if the substandard systems have been improved.

G L O S S A R Y

ALKALINITY:

A measure of water's capacity to neutralize acids, due primarily to salts of the weak acids. (Bicarbonates represent the major form).

COLIFORM BACTERIA:

Bacteria which are considered as a reliable indicator of pathogenic or disease-oriented organisms.

FAECAL COLIFORMS:

A species of bacteria associated with human and animal faecal matter which indicates a relatively recent pollution input.

FAECAL STREPTOCOCCI:

Bacteria, largely associated with animal faecal matter and to a lesser extent man. As a result, they may be used to gain information regarding contaminant sources.

GREY WATER:

Disposal water from sink, laundry, and bath facilities

HARDNESS:

A measure of the "soap consuming power" of water due to the presence of metallic cations. The principle components of hardness are calcium and magnesium.

Mg/l:

Milligrams per litre

RICHARD'S LANDING

SURVEY DATA SUMMARY

APPENDIX I

<u>Sample Code</u>	<u>Name</u>	<u>Sewage System</u>	<u>Kitchen-Bath Waste</u>	<u>Drinking Water Supply</u>
	F. Littleton	septic tank	septic tank	drilled well
	G. Styles	"	unknown	dug well
I-2	F. W. Brason	"	septic tank	stream
I-3	R. D. Nelson	"	separate tank	lake
I-4	C. Ferguson	"	septic tank	well
I-9	H. F. Pritchard	"	septic tank	drilled well
I-10	J. P. Low	"	unknown	drilled well
I-12	E. A. Nelson	"	separate tank	spring
I-13	C. F. Robertson	"	grease trap	lake
I-14	D. Barnett	"	septic tank	lake
I-15	H. W. Courtney	"	unknown	drilled well
II-1	M. Barton	"	unknown	lake
II-2	Tranter	"	unknown	lake
II-4	Hospital	"	septic tank	lake
II-5	Beduhn	"	septic tank	lake
II-6	R. Fraser	holding tank	unknown	none
II-7a	Tw. Office	holding tank	unknown	none
II-8	L.C.B.O.	holding tank	unknown	none

<u>Sample Code</u>	<u>Name</u>	<u>Sewage System</u>	<u>Kitchen-Bath Waste</u>	<u>Drinking Water Supply</u>
II-11	R. J. Bishop	septic tank	septic tank	lake
II-15	J. E. Barton	"	septic tank	lake
II-16	E. Trefry	"	septic tank	spring and lake
II-20	see map for location	"	separate tank	spring
II-25	Bob Booth	unknown	unknown	spring and lake
III-3	N. H.	"	unknown	unknown
III-4	M. McLeod	"	septic tank	Soo
III-5	M. Chester	septic tank	unknown	spring
III-6	S. R. Bishop	septic tank	septic tank	well
IV-1	W. L. Armstrong	unknown	unknown	spring and lake
IV-2	E. C. Anworthy	septic tank	unknown	spring
IV-3	I. W. Robinson	septic tank	leaching pit	drilled well
IV-5	P. Adams	"	septic tank	spring
IV-8	D. S. Littleton	"	separate tank	spring
IV-9	D. McCarthy	"	separate tank	spring
IV-11	B. Alton	"	unknown	spring
IV-14	C. Eddy	"	septic tank	spring
V-1	C. J. Blatter	"	unknown	drilled well
V-2	R. J. Gibbs	"	septic tank	well
V-3	A. Littleton	"	separate tank	spring
V-4	G. H. Wood	"	septic tank	Soo

<u>Sample Code</u>	<u>Name</u>	<u>Sewage System</u>	<u>Kitchen-Bath Waste</u>	<u>Drinking Water Supply</u>
V-5	N. H.	unknown	unknown	unknown
V-6 ₁	H. M. Shaule	septic tank	unknown	drilled well
V-6 ₂	A. Hadden	septic tank	unknown	drilled well
V-14	see map for location	septic tank	old well	drilled well
VI-2	M. Daynard	"	separate tank	spring
VI-5	N. Catterick	"	separate tank	spring
VI-6	Atkinson	"	septic tank	spring
VI-7	H. Armstrong	"	septic tank	spring
VI-8	A. Rains	"	separate tank	spring
VI-9	M. McGregor	"	unknown	spring
VI-10	E. A. McKay	"	unknown	drilled well
VI-11	B. Maguire	"	unknown	drilled well
VI-12	Vivian Kent	"	septic tank	drilled well
VI-13	R. Gignac	"	unknown	drilled well
VI-14	H. Brown	"	septic tank	dug well
VII-2	A. S. Booth	"	septic tank	drilled well
VII-4	I. Booth	"	septic tank	drilled well
VII-6	M. T. Prodon	"	septic tank	drilled well
VII-7	D. Adams	"	septic tank	drilled well
VII-9	R. Stortini	unknown	unknown	dug well
VII-10	B. Page	septic tank	septic tank	drilled well

<u>Sample Code</u>	<u>Name</u>	<u>Sewage System</u>	<u>Kitchen-Bath Waste</u>	<u>Drinking Water System</u>
VII-A	M. Wood	septic tank	leaching pit	drilled well
VII-C	M. Leland	"	unknown	dug well
VII-14	W. Hadden	"	unknown	drilled well
VII-22	G. Pryor	"	unknown	lake
VIII-1	W. Bennett	"	unknown	well
VIII-2	A. A. Grexton	"	septic tank	drilled well
VIII-3	R. Periard	"	unknown	drilled well
VIII-4	D. S. Boyle	"	septic tank	drilled well
VIII-6	A. Clark	"	septic tank	drilled well
IX-2	W. G. Ambeault	"	unknown	drilled well
IX-3	vacant	unknown	unknown	unknown
IX-4	C. Aelick	septic tank	septic tank	drilled well
IX-6	R. Nelson	septic tank	septic tank	drilled well
IX-8	J. S. Cruickshank	septic tank	septic tank	dug well
X-1	G. Jahner	septic tank	unknown	dug well
X-4	M. Morton	septic tank	cesspool	drilled well
X-5	J. L. Hollingsworth	"	unknown	dug well
X-7	E. Cain	"	septic tank	drilled well
X-8	P. Rowe	unknown	grease trap	dug well
X-9	A. Clark	septic tank	unknown	drilled well
XI-5	B. Cain	"	unknown	drilled well

<u>Sample Code</u>	<u>Name</u>	<u>Sewage System</u>	<u>Kitchen-Bath Waste</u>	<u>Drinking Water System</u>
XII-4	M. Trainor	septic tank	unknown	drilled well
XII-5	Central Board of Education	"	septic tank	drilled well
XII-6	C. W. Ross	"	separate tank	drilled well
XII-7	M. N. Craig	"	septic tank	drilled well
XIII-1	L. K. Armstrong	"	separate tank	drilled well
XIII-4	Mr. Eldred	unknown	unknown	drilled well
XIII-5	D. Archibald	septic tank	unknown	spring
XIII-6	B. Gunn	"	separate tank	drilled well
XV-1	S. Stevens	"	unknown	drilled well
XV-3	T. Simons	"	unknown	drilled well
XV-4	E. Porter	"	unknown	drilled well
XV-5	T. Simons	"	unknown	drilled well
XX-7	V. C. Fyfe	"	unknown	spring

Appendix II

RICHARD'S LANDING

BACTERIOLOGICAL RESULTS

Sample Identification	Coliforms per 100 ml		Faecal Streptococci per 100 ml.
	Total	Faecal	
I-1 Willis Wharf (lake)	4	2	
I-2 F. Brason	2	2	44
I-3 Nelson	0	0	<2
I-9 Pritchard	0	0	22
I-10 Low	0	0	0
I-12 E. A. Nelson	0	0	4
I-12a R. Nelson (lake sample)	4	0	6
I-13 Robertson	0	0	2
I-15 Courtney	0	0	4
II-1 Barton	30	30	6
II-2 Tranter	0	0	<2
II-5 Beduhn	0	0	2
II-15 T. E. Barton	0	0	2
II-16 Trefry	0	0	2
II-25 C. Holmes	0	0	0
II-25a Holmes (lake sample)	80	2	14
III-5 M. Chester	0	0	160
III-6 J. R. Bishop	80	60	58
IV-1 W. L. Armstrong	0	0	<2
IV-2 E. C. Axworthy	0	0	<2
IV-3 Robinson	0	0	<2
IV-5 P. Adams	0	0	<2
IV-8 Littleton	0	0	<2
IV-9 McCarty	0	0	8
IV-11 Alton	0	0	<2
IV-14 Eddy	2	2	10

Appendix II (cont'd)

RICHARD'S LANDING

BACTERIOLOGICAL RESULTS

Sample Identification	Coliforms per 100 ml		Faecal Streptococci per 100 ml
	Total	Faecal	
V-1 Blatter	0	0	4
V-2 R. J. Gibbs	0	0	<2
V-4 Wood	0	0	2
V-6 Hadden	0	0	<2
V-6 Shaule	0	0	20
VI-2 Daynard	0	0	<2
VI-5 Catterick	0	0	<2
VI-6 Atkinson	0	0	<2
VI-8 Rains (well)	0	0	<2
VI-8a Rains (spring)	0	0	<2
VI-10 MacKay	0	0	<2
VI-11 B. Maguire	0	0	2
VI-12 V. Kent	0	0	<2
VI-13 P. Gignac	0	0	<2
VI-14 Brown	0	0	<2
VII-3 (spring)	2	0	--
VII-4 Booth	0	0	--
VII-6 Prodan	0	0	0
VII-9 R. Stortini	0	0	--
VII-10 Page	0	0	--
VII-14 Whadden	0	0	<2
VII-22 Pryor	0	0	--
VII-A Woods	0	0	--
VII-C Leland	0	0	--

Appendix II (cont'd)

RICHARD'S LANDING

BACTERIOLOGICAL RESULTS

Sample Identification	Coliforms per 100 ml		Faecal Streptococci per 100 ml
	Total	Faecal	
VII-7 D. Adams	0	0	--
VIII-1 Bennett	0	0	<2
VIII-2 A. Grexton	0	0	<2
VIII-3 Periard	12	12	<2
VIII-4 Boyle	8	0	6
VIII-5 Archibald	0	0	0
VIII-6 Clark	0	0	<2
IX-2 Ambeault	0	0	<2
IX-4 Aelick	0	0	0
IX-6 Nelson	0	0	<2
IX-8 Cruikshank	0	0	
X-1 Jahner	0	0	
X-4 Mortons	0	0	
X-5 Hollingsworth	0	0	
X-7 E. Cain	0	0	
X-8 Rowe	0	0	
X-9 A. Clarke	0	0	
XI-5 B. Cain	0	0	
XII-4 Trainor	0	0	<2
XII-5 St. Joseph Central School (fountain)	0	0	0
XII-5a St. Joseph Central School (tap)	0	0	0
XII-6 C. W. Ross	0	0	0

Appendix II (cont'd)

RICHARD'S LANDING

BACTERIOLOGICAL RESULTS

Sample Identification	Coliforms per 100 ml		Faecal Streptococci per 100 ml
	Total	Faecal	
XII-7 Craig	0	0	0
XIII-1 C. K. Armstrong	0	0	0
XIII-4 Eldred	0	0	0
XIII-6 B. Gunn	0	0	<2
XV-1 Porter	0	0	0
XV-3 Stevens	0	0	0
XV-4 T. Simons	0	0	0
XV-7 Fyfe	0	0	<2

NOTE: The results on all pages of the table are in mg/l except for pH and conductivity.

Richards Landing 1

Chemical Analysis Results

CODE #	NAME	HARDNESS as CaCO ₃	ALKALINITY as CaCO ₃	IRON as Fe	CHLORIDE as Cl	pH at Lab	NITRATES as N	CONDUCTIVITY (μ hos/cm)
I-1	Willis Wharf	46	45	0.15	2	8.1	.1	99
1-2	F. Brason	50	46	0.65	2	7.7	.2	100
1-3	Nelson	50	46	0.10	1	7.8	.2	100
1-9	Pritchard	3	275	< 0.05	7	7.6	< .1	565
1-10	Mr. Low	295	269	2.5	7	7.4	< .1	545
1-12	E. A. Nelson	296	252	< 0.05	27	7.5	1.2	565
1-12a	Nelson (lake)	47	45	0.15	2	8.2	.1	98
1-13	Robertson	< 2	49	0.15	2	8.2	.2	105
1-15	Courtney	242	154	0.10	62	8.0	< .1	497
11-1	M. Barton	51	48	0.35	2	7.8	.1	104
11-2	Tranter	51	47	0.15	2	8.1	.2	102
11-5	Beduhn	47	45	0.20	2	8.2	< .1	97
11-14	Eddy	46	46	0.15	2	8.1	.1	100
11-15	T. E. Barton	57	52	0.35	2	8.4	.1	116
11-16	Trefry	293	249	0.05	29	7.5	1.4	565

Richards Landing

(cont'd) 2

Chemical Analysis Results

CODE #	NAME	HARDNESS as CaCO ₃	ALKALINITY as CaCO ₃	IRON as Fe	CHLORIDE as Cl	pH at Lab	NITRATES as N	CONDUCTIVITY (μ mhos/cm)
11-25	C. Holmes	133	134	< 0.05	2	8.0	< .1	274
11-25a	Holmes (lake)	46	47	0.15	2	8.5	< .1	101
111-5	Chester	296	253	0.30	29	7.5	1.1	560
111-6	J. R. Bishop	153	121	<0.05	14	6.7	7.7	375
1V-1	W. L. Armstrong	297	260	< 0.05	28	7.6	1.3	880
1V-2	E. C. Axworthy	295	251	< 0.05	29	7.5	1.1	565
1V-3	Robinson	347	323	3.7	4	7.4	< .1	615
1V-5	P. Adams	294	251	0.05	28	7.5	1.4	565
1V-8	Littleton	294	252	< 0.05	29	7.6	1.2	570
1V-9	McCarty	302	259	< 0.05	27	7.6	1.2	575
1V-11	Alton	298	260	1.0	28	7.7	1.4	535
V-1	Blatter	308	289	1.1	6	7.4	< .1	565
V-2	R. J. Gibbs	119	98	0.10	18	6.3	8	340
V-3	Littleton	287	252	0.15	28	7.4	2.5	525
V-4	Wood	277	264	< 0.05	5	7.4	.5	452
V-6	Shaule	46	37	0.25	9	6.4	1.5	151

Richards Landing (cont'd) 3

Chemical Analysis Results

CODE #	NAME	HARDNESS as CaCO ₃	ALKALINITY as CaCO ₃	IRON as Fe	CHLORIDE as Cl	pH at Lab	NITRATES as N	CONDUCTIVITY (μ mhos/cm)
V-6a	Hadden	286	270	< 0.05	6	7.4	.7	488
V1-2	Daynard	283	250	< 0.05	28	7.5	1.5	530
V1-5	Catterick	287	252	0.20	28	7.5	1.5	525
V1-6	Atkinson	292	254	< 0.05	29	7.6	1.6	530
V1-7	McClelland	296	252	0.40	28	7.5	1.4	565
V1-8	Rains (spring)	296	262	< 0.05	27	7.6	1.5	530
V1-8a	Rains (well)	313	293	3.3	9	7.5	< .1	525
V1-9	McGregor	298	254	0.05	28	7.5	1.2	575
V1-10	Mackay	296	281	3.8	9	7.4	< .1	510
V1-11	Maguire	346	315	4.9	14	7.3	< .1	580
V1-12	V. Kent	290	255	0.05	27	7.4	1.5	530
V1-13	R. Gignac	284	256	2.2	29	6.9	< .1	545
V1-14	Brown	257	236	0.05	70	7.0	2.4	645
V11-3	Spring	243	222	< 0.05	20	7.3	2.5	448
V11-4	I. Booth	2	226	0.15	2	7.5	< .1	408
V11-6	Prodon	164	196	0.20	4	7.8	< .1	390

Richards Landing

(cont'd)

4

Chemical Analysis Results

CODE #	NAME	HARDNESS as CaCO ₃	ALKALINITY as CaCO ₃	IRON as Fe	CHLORIDE as Cl	pH at Lab	NITRATES as N	CONDUCTIVITY (μ mhos/cm)
V11-7	Adams	152	146	0.25	1	7.9	<.1	302
V11-9	R. Stortini	169	142	< 0.05	12	7.2	.3	325
V11-10	Page	198	179	0.80	2	7.7	< .1	345
V11-14	Hadden	299	262	0.65	24	7.3	2.5	535
V11-22	G. Pryor	50	46	0.20	10	7.4	.3	102
V11-A	Woods	265	253	1.7	2	7.3	< .1	450
V11-C	M. Leland	261	252	2.6	2	7.3	< .1	435
V111-1	Bennett	324	309	1.9	6	7.3	< .1	545
V111-2	A. Grexton	314	290	0.05	14	7.4	.9	580
V111-3	R. Periard	315	293	2.3	11	7.4	< .1	535
V111-4	Boyle	323	291	2.7	11	7.4	< .1	580
V111-5	Archibald	296	249	0.05	29	7.5	1.4	570
V111-6	A. Clark	300	272	<0.05	24	7.4	1.0	545
1X-2	W. Ambeaut	297	264	0.25	21	7.4	1.2	525
1X-4	Aelick	292	248	0.05	26	7.5	1.4	560

Richards Landing (cont'd) 5

Chemical Analysis Results

CODE #	NAME	HARDNESS as CaCO ₃	ALKALINITY as CaCO ₃	IRON as Fe	CHLORIDE as Cl	pH at Lab	NITRATES as N	CONDUCTIVITY (μ mhos/cm)
1X-6	R. Nelson	290	245	0.05	27	7.4	1.5	510
1X-8	Cruickshank	285	248	< 0.05	24	7.5	2.3	510
X-1	Jahner	264	262	0.85	12	7.6	< .1	497
X-4	Morton	226	202	< 0.05	10	7.1	6.6	438
X-5	Hollingsworth	185	158	0.40	5	7.2	1.2	331
X-7	E. Cain	281	272	2.1	2	7.4	< .1	480
X-8	P. Rowe	278	241	0.40	21	7.4	2.4	490
X-9	A. Clark	285	245	< 0.05	24	7.4	2.7	515
X-15	B. Cain	273	259	0.10	2	7.7	.1	455
X11-4	Trainor	272	241	< 0.05	24	7.4	1.2	489
X11-5	St. Joseph's Island Public School	279	236	0.05	22	7.5	1.0	522
X11-6	C. W. Ross	271	238	< 0.05	22	7.4	1.0	510
X11-7	M. N. Craig	271	238	0.10	26	7.5	1.2	535
X111-1	L. K. Armstrong	287	247	0.05	33	7.4	1.5	575
X111-4	Eldred	297	276	< 0.05	18	7.4	.5	560

Richards Landing (cont'd) 6

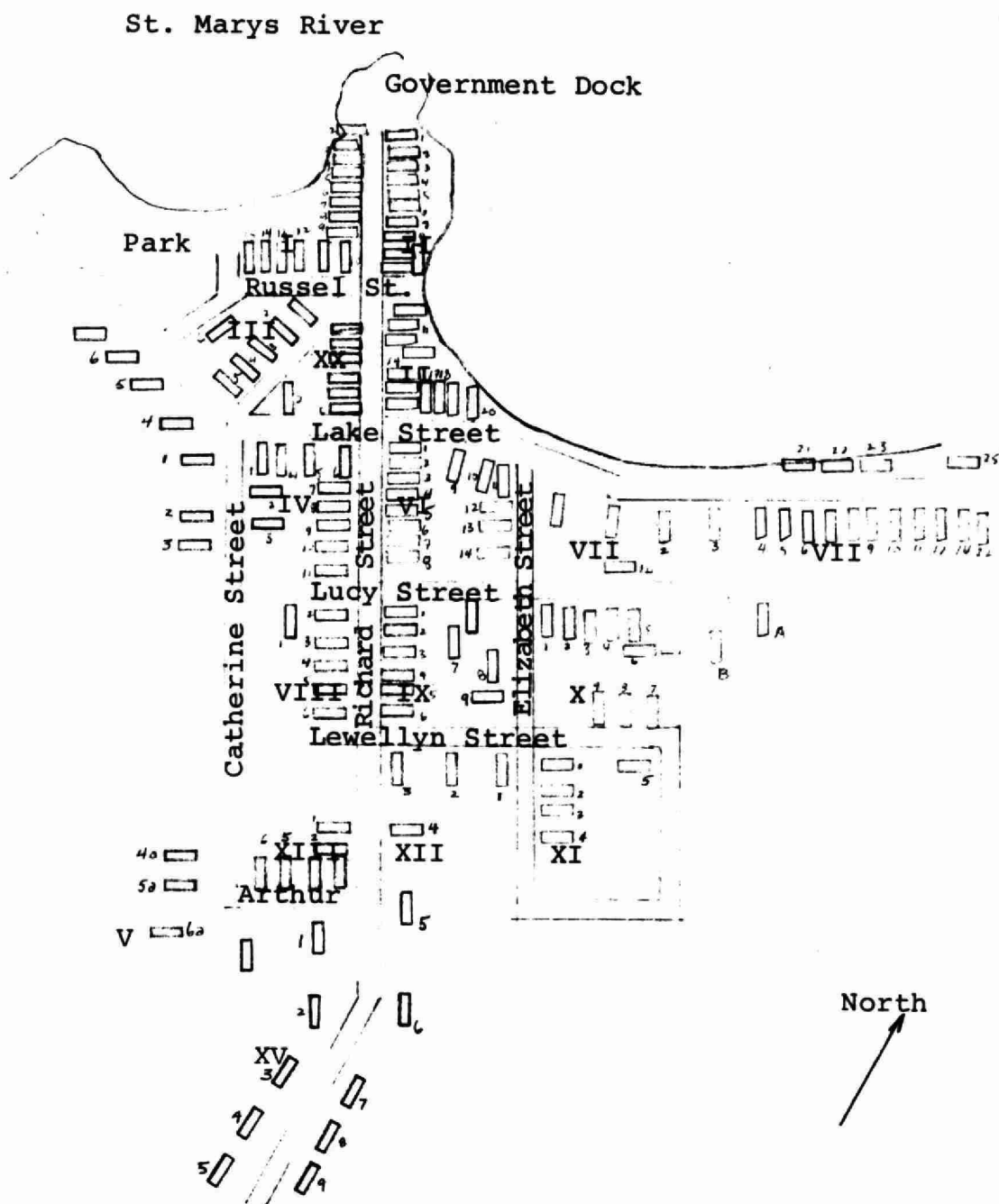
Chemical Analysis Results

CODE #	NAME	HARDNESS As CaCO_3	ALKALINITY As CaCO_3	IRON As Fe	CHLORIDE As Cl	pH at Lab	NITRATES as N	CONDUCTIVITY ($\mu\text{mhos/cm}$)
Xl111-6	B. Gunn	294	259	<0.05	23	7.5	1.6	530
XV-1	Porter	299	278	<0.05	14	7.4	.4	560
XV-3	Stevens	274	237	<0.05	26	7.5	1.0	530
XV-4	Simons	285	255	0.15	16	7.5	.5	542
XX-7	Fyfe	290	254	<0.05	28	7.5	1.3	575
W-1	lake	49	48	0.40	2	8.3	.1	104
1	G. Styles	301	280	1.5	5	7.4	<.1	510
2	Laundromat	47	48	0.20	2	8.0	<.1	101
2a	Fred Littleton	319	301	0.30	1	7.6	<.1	555
<u>TOTAL</u>		19,668	18,157	48.6	1379	647.2	88.30	38048
<u>AVERAGE</u>		228.69	211.12	.56	16.03	7.52	1.02	442.41

TOWNSHIP OF ST. JOSEPH

RICHARDS LANDING

* Note map not to scale



MINISTRY OF THE
ENVIRONMENT
1977



JUN 16 1978

SEP 15 1978

[illegible]

PRINTED IN CANADA